ADVISORY DEPARTMENT

OF

THE IMPERIAL COLLEGE OF

TROPICAL AGRICULTURE.

IMPERIAL MYCOLOGICAL
14 OCT 1937
INSTITUTE

REPORT

ON THE

AGRICULTURAL DEPARTMENT, ST. VINCENT,

FOR THE YEAR

1936.

[Price Sixpence.]

Annual Report

of the

Agricultural Department.

St. Vincent.

1936.

PRINTED BY THE GOVERNMENT PRINTER, AT THE GOVERNMENT PRINTING OFFICE, KINGSTOWN, ST. VINCENT.

1937.

REVIEW BY THE COMMISSIONER OF AGRICULTURE OF THE REPORT.

In accordance with the usual procedure, the Report of the Agricultural Department of St. Vincent for 1936, prepared by the Agricultural Superintendent of St. Vincent, has been forwarded to the Commissioner of Agriculture at the Imperial College of Tropical Agriculture, Trinidad, Mr. G. A. Jones.

The following is an extract from his review of the Report :—

" 2. The total export value of agricultural products exported during 1936 amounted to £152,890 or £20,976 greater than in 1935. This increase was largely due to increases in the quantity and value of Sea Island Cotton exported and also to a lesser degree to the development of the banana industry and the continued expansion of the arrowroot industry.

3. The weather conditions during the year were definitely unfavourable, the rainfall being deficient and badly distributed. The effort put forward by planters and peasants towards increased production was thus largely nullified.

4. The arrowroot industry continues to be the major industry of the Island and represents 52% of the total value of the exports. In five years the value of exports of arrowroot starch has risen from £47,500 to £80,400. Those responsible for the organisation of this industry are to be congratulated on the excellent results achieved. The Arrowroot Marketing Board, under the Chairmanship of Mr. F. A. Corea, have adopted a bold policy which has been amply justified.

5. Not only has the cooperative marketing of the crop proved to be of the greatest benefit to the producers but the enlightened attitude of the Board towards research has resulted in noted improvements in agricultural and manufacturing processes resulting in increased production of a superior grade of starch.

6. The value of the exports of Sea Island Cotton increased from £9,947 in 1935 to £28,972 in 1936. The increased demand for Sea Island Cotton is mainly the result of the activities of the Advisory Committee in England of the West Indian Sea Island Cotton Association. If this demand is to be maintained the work of the Association must receive the continued support of the industry. There is every indication that the producers realise the value of cooperative action in this as well as in other matters. St. Vincent's contribution to the work of the West Indian Association amounted to less than £200 during 1936 or 7% of the value of the cotton exports.

The Empire Cotton Growing Corporation continues to maintain a Research Officer in St. Vincent. This officer, in close cooperation with the Government Agricultural Officers, is responsible for the purity of the seed supply, for improving the standard of cultivation and for constant endeavours to produce a higher bearing strain of cotton. The Island is fortunate in having been selected as the site for the conduct of this work.

8. The work of the Government Cotton Ginnery has continued under the supervision of the Agricultural Superintendent who is Chairman of the Management Committee. Improvements of some magnitude were effected during the year resulting in all round improvement in efficiency and a greatly increased production of a superior grade of edible oil.

9. The peasants delivering cotton to the ginnery were paid at the rate of 8·2 cents per lb. of seed cotton and a sum of £6,781 was distributed by Government through the ginnery in this connection.

10. There was a slight falling off in the total value of sugar cane products exported during the year from £13,229 in 1935 to £12,592 in 1936. The exports of sugar declined from 700 tons to 500 tons but exports of syrup increased slightly.

11. Renewed attention was paid during the year to the improvement in the quality of the syrup produced in the Island. On the recommendation of the

Sugar Technologist at the Imperial College, a crop specialist was appointed to assist growers in the production of a superior grade of syrup. An account of his work is given in the Report.

12. The value of coconut products exported during 1936 at £13,800 remained almost constant in spite of a falling off in quantity. The severe drought of the first six months of the year had a depressing effect on yields. It is anticipated that the exports of coconut products will continue to increase as the groves reach maturity.

13. The new banana export trade is growing slowly. Planters are rapidly gaining experience in the cultivation of this somewhat exacting crop. From a small beginning in 1935 the export value in 1936 was £2,663. A further substantial increase may be expected in 1937.

14. St. Vincent is fortunate in the number and variety of its exportable crops. Small quantities of a dozen or more products, in addition to its four main lines of export, are listed in the Treasury returns. It will be noted that there is a falling off in the quantities of a number of them, such as cassava starch, sweet potatoes, groundnuts, peas, etc. This is mainly due to a reduced demand in Trinidad resulting from a drive in that island to produce more of its own food stuffs. The writer has noticed a great lack of organisation in the marketing of these smaller products resulting in disastrous low prices at certain times of the year.

15. The value of live stock exported from the Island is about £6,300 per annum. There is room for much improvement in the quality of the live stock exported and this can best be remedied by the importation into the island of good stud animals. This is a service that the agricultural department could render should funds be placed at its disposal for the purpose.

16. The impression that is gained by reading this excellent report is that the Agricultural Department is contributing in a most commendable manner to the general good and that its works is indispensable. There is, however, need for extending the work of the Department by providing on the staff an officer whose primary duty would be to instruct, supervise and organise the peasant producers."

ALBAN WRIGHT,
Administrator.

28th August, 1937.

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COTTON RESEARCH STATION.

Provided by the Empire Cotton Growing Corporation.

Cotton Research Officer ...	... S. H. Evelyn, D.I.C.T.A.

REPORT ON THE AGRICULTURAL DEPARTMENT ST. VINCENT

FOR THE YEAR ENDED DECEMBER 31st, 1936.

SECTION I.

Weather Conditions.

Weather conditions during 1936 were very abnormal and were responsible for considerable reductions in crop yields. The rainfall during the first four months of the year was extremely low and the returns from most stations are the lowest on record. The total precipitation at the Botanic Gardens was only 6·44 inches whereas the average figure for the previous 42 years is 18·58 inches. The low rainfall during this period and the light and porous nature of the St. Vincent soil caused most crops to exhibit the effects of drought. The cotton crop was curtailed, the yields of most crops were reduced and, owing to the hardness of the soil, the digging of arrowroot fields at the right time was rendered difficult and, in some cases, impossible. The lack of moisture in the soil was also responsible for retarding or preventing the germination of arrowroot "bits" and cane cuttings so that many fields to be reaped during 1937 are late and irregular.

The rainfall during the last eight months of the year was normal in amount but somewhat unevenly distributed. The first three weeks in December were particularly dry and there were several other short periods between August and December when the amount of soil moisture was not sufficient to meet crop requirements.

The total rainfall at the Botanic Gardens was 88·74 inches which is 13·12 inches below the average for the last 43 years. Rain fell on 258 days at the Botanic Gardens and on 242 days at the Experiment Station.

Tables of meteorological observations are given as an Appendix to this Report.

General.

The Customs returns for the year 1936 show that the export and import trade of the Colony continues to improve. The value of exports, £152,890, and imports, £173,661, were respectively £20,976 and £2,269 greater than the corresponding values for the year 1935. The largest change in the export values was produced by the revival of the Sea Island cotton industry. Sea Island cotton exports during 1936 were valued at £28,972, whereas during 1935 they were valued at only £9,947. The value of arrowroot starch exported increased by £3,751.

The chief exports and the export values for the Colony during the last three years are given in Table I.

TABLE I.

		Quantities exported.			Values exported.		
		1934.	1935.	1936.	1934.	1935.	1936.
					£	£	£
Arrowroot Starch	lb.	6,526,003	6,609,856	6,974,962	75,044	76,668	80,419
Sugar	tons	750	725	500	5,979	6,406	3,961
Syrup and Molasses	gals.	269,233	148,357	163,720	11,218	6,182	7,900
Rum, proof	„	5,761	5,468	5,497	908	641	731
Cotton, Sea Island	lb.	204,519	205,459	395,598	9,346	9,947	28,972
Cotton, Marie Galante	„	53,907	38,604	68,285	1,123	804	1,707
Copra	„	2,015,675	840,602	787,765	6,551	3,418	4,831
Coconuts	no.	979,988	3,391,582	2,795,190	2,538	10,215	8,969
Cocoa	lb.	94,758	97,242	27,782	894	915	235
Bananas	stems	458	5,837	35,598	46	475	2,663
Cassava Starch	lb.	480,587	778,059	531,944	3,081	4,124	2,395
Groundnuts	„	12,048	15,282	575	83	98	2
Nutmegs	„	21,544	30,240	26,220	269	378	375
Mace	„	5,044	6,796	4,805	210	283	256
Maize	„	34,350	4,261	5,368	109	25	22
Peas	„	60,274	100,872	51,357	377	624	313
Limes	No.	1,183,219	695,570	513,398	198	166	154
Plantains	stems	—	—	—	484	295	210
Sweet Potatoes	bags (120 lb.)	9,868	9,150	3,411	3,152	2,294	1,096
Yams	lb.	—	—	—	160	168	124
Tannias	„	—	—	—	607	477	287
Cattle	No.	19	22	34	108	135	137
Goats	„	2,372	2,114	2,110	633	758	808
Poultry	„	—	—	—	770	687	858
Pigs	„	2,174	2,390	2,127	3,705	3,954	3,843
Sheep	„	800	958	814	438	485	429
Asses	„	103	45	81	127	85	110
Horses	„	9	2	11	333	55	214

Arrowroot Industry.

The severe dry season during the first few months of 1936 caused the reaping of arrowroot on some estates to be very difficult. During the latter part of the crop digging operations were retarded owing to the hardness of the soil, and it was impossible to reap some fields until the commencement of the rainy season, by which time the starch content of the rhizomes had decreased. On a few estates the shortage of water presented difficulties in the factories.

The area under arrowroot cultivation was estimated to be about 3,700 acres. The starch content of the rhizomes was high, and the yields obtained per acre were good. The quantity of starch manufactured during the 1935-36 season constituted a record, and exceeded the quantity produced during 1935 by about 76,000 lb.

The quantity of arrowroot starch exported during 1936 amounted to 6,974,962 lb. which, being 365,106 lb. greater than the quantity exported during 1935, was also a record. The total exports for the last five years are given in Table II.

TABLE II.

Year.	Arrowroot lb.	Value. £	Cassava. £	Value. £
1932	3,704,833	47,524	518,888	3,241
1933	4,589,435	55,510	681,761	3,110
1934	6,526,003	75,044	480,587	3,081
1935	6,609,856	76,668	778,059	4,124
1936	6,974,962	80,419	531,944	2,395

The exports of starch to the United States of America which in 1930 totalled 1,084,536 lb., amounted to 4,231,580 lb. during 1936. The starch shipped to this destination is chiefly of the higher grades. Exports to England and Canada were each about 7% higher than during 1935. The destinations of starch exported during the last six years are given in Table III.

TABLE III.

Countries.	1931. lb.	1932. lb.	1933. lb.	1934. lb.	1935. lb.	1936. lb.
United Kingdom ...	1,017,193	1,122,621	1,523,663	1,794,125	1,764,186	1,892,912
U. S. America ...	1,980,809	2,036,728	2,455,858	3,534,071	3,954,400	4,231,580
France ...	31,115	106,415	230,160	142,410	212,800	193,736
Canada ...	246,956	258,497	193,557	370,838	404,064	431,640
Barbados ...	38,945	11,877	8,492	98,748	15,348	8,202
Germany ...	13,920	47,358	78,814	63,628	87,264	75,056
Trinidad ...	27,479	873	6,720	384,188	61,291	61,980
Holland ...	112,311	80,413	51,520	36,739	57,120	48,864
Antigua ...	24,937	8,212	5,835	15,024	19,926	7,920
Jamaica ...	16,026	12,077	12,000	2,400	7,200	2,400
British Guiana ...	—	—	—	52,720	19,309	8,560
Other Countries ...	22,636	19,762	22,816	31,112	6,948	12,112

The area planted with arrowroot for the 1936-37 crop is estimated to be about 3,750 acres. The extreme dry weather experienced during the planting season considerably delayed the germination of the planting material, and a very uneven stand was produced. Fields planted during the middle of the dry season usually contain sufficient moisture to produce immediate germination and they are generally covered with vegetation before the beginning of the wet season. During 1936, however, this did not occur, and when extremely heavy rains fell soon after the commencement of the wet season, many fields were comparatively bare of vegetation, and considerable quantities of soil were lost by erosion.

A few weeks later the crop was severely attacked by the arrowroot leaf worm (*Calpodes ethlius*). The infestation was first noticeable in the North Windward district, and from there appeared to spread sporadically to the South Windward, and later to the Leeward districts. The butterflies apparently prefer to lay their eggs on the young foliage of vigorously growing plants, and fields which had received heavy applications of nitrogenous manures were specially affected. The damage inflicted was the worst experienced for some years and in many fields very little of the leaves remained uneaten except the mid-rib.

In the early stages of the attack, the number of natural parasites, which normally play a very important part in effecting the control of the pest, was abnormally low. The influence of weather on the mortality of the parasites concerned is not known, but it is thought that few must have been able to survive the arid conditions prevailing during the 1936 dry season. As the attack of caterpillars progressed, however, natural parasites became more prevalent, and by September they were evidently responsible for the effective control of the pest.

The results of arrowroot experiments conducted during the 1935-36 season have already been published in the 1935 Report. The manurial experiments indicated once again that St. Vincent soils are very deficient in nitrogen. The information gained was communicated to growers, and the use of nitrogenous manures was greatly increased. Some growers appear to be rather doubtful as to the advantage of using sulphate of ammonia because, where this manure was applied during 1936, the arrowroot was often more severely affected by arrowroot leaf rollers than in unmanured fields. Experiments which have recently been reaped, however, indicate that, in spite of the increased damage caused by

leaf rollers, sulphate of ammonia has produced very large and profitable increases in yield. The optimum quantity of sulphate of ammonia which should be applied under average conditions is now thought to be between 3 and 4 cwt. per acre.

During the year 1936 the majority of estate owners carried out improvements in their arrowroot factories by modifying their machinery and equipment to increase the output and quality of starch manufactured. In many instances the advice of Agricultural Officers was sought before alterations were made. On one estate the erection of a small modern factory was completed, and although minor alterations are desirable, the equipment has already proved that it is capable of producing starch of extremely high quality.

The quality of starch manufactured on most estates is improving from year to year. The standard of the grades into which starch is placed on being delivered to the Co-operative Arrowroot Association has also been slowly raised, so that a starch which would have been placed in Grade 2 three years ago would now be placed in Grade 3. This improvement in quality probably accounts for the fact that whereas starch shipped to the United Kingdom was formerly chiefly of Grade 2 it is now chiefly of Grade 3. Most of the starch shipped to the United States of America, however, is of Grade 2, which at the present time differs extremely little from Grade 1.

Cotton Industry.

Sea Island.

1935–36 Crop. The picking of the 1935–36 cotton crop commenced late in December 1935 and was continued until April 1936. The yield obtained was not quite as high as was expected and there is no doubt that the extremely dry weather conditions experienced during the first four months of the year caused the plants to dry up rather prematurely. Plants which had received fairly heavy dressings of nitrogenous manures, however, showed a much greater tendency to continue growing during the dry period and produced higher yields than those which were not manured.

The migration of stainers from the neighbourhood of the Soufrière to cotton fields in the North Windward districts took place very early (in December) and it was expected that they would become extremely prevalent before the end of the crop. Although the rate of propagation was rather fast at first, it soon declined and, later, the numbers of stainers in the fields actually diminished. During the middle of the dry season officers of the Department visited infested fields to investigate some of the habits of the pest particularly with regard to where the eggs were laid. In some fields stainers were almost difficult to find, but eventually a very heavy infestation was found at the end of a field which was bordered by a cart-road and a row of coconut trees. A search for eggs on the cotton plants, on weeds, under dry leaves lying on the ground and in dry soil proved unsuccessful. Several batches of eggs and of young nymphs which had just hatched were discovered, however, in damp patches of soil underneath piles of cut coconut leaves lying on the cart road, and beneath a few coconuts which had been cut for drinking purposes and thrown into the cotton field. The delicate appearance of the eggs, the discovery of eggs and nymphs in moist situations only, the apparent correlation between the prevalence of stainers and the presence of a moist breeding ground, and finally the reduction in the number of stainers as the dry season progressed all indicate that the presence of moisture is an important and perhaps necessary factor in the efficient propagation of stainers.

In February 1936 the seed cotton arriving in St. Vincent from the island of Bequia was very badly infested with pink boll-worms. In order to protect the St. Vincent crop which was only mildly affected, the Agricultural Superintendent made use of his powers under the Plant Protection Ordinance and prohibited the removal of cotton from Bequia unless it had been fumigated to the satisfaction of

an officer of the Department. The Field Assistant visited Bequia each week to carry out the fumigation, and arrangements were made whereby the peasants were able to dispose of their seed cotton to the Government Cotton Ginnery before fumigation at a farthing per pound less than they would receive at the Ginnery in St. Vincent. The reduction of one farthing was made to offset the cost of fumigation and transport to St. Vincent. All the peasants were glad to dispose of their seed cotton in this way.

The area planted with cotton in 1935 was 3,540 acres and the production of lint in 1936 amounted to 357,504 lb. white and 39,456 lb. stained, a total of 396,960 lb. and an average of 112 lb. per acre. The percentage of stained to white was 11·05, and was much lower than in the two previous years.

The exports of lint recorded at the Treasury amounted to 395,598 lb. valued at £28,972. Of this quantity 54,094 lb. were shipped to the French market, and the remainder to England. The prices obtained during the year were 18d. f.o.b. and from 20d. to 22d. c.i.f. England. A few bales were sold at higher prices later in the year owing to the failure of the Montserrat crop.

The revival of the cotton industry is clearly demonstrated by the figures given in Tables IV and V.

TABLE IV.

Crops.	Area planted Acres.	Weight of lint lb.	Weight of lint per acre lb.	Per cent stained to white.
1932–33	669	85,852	122	6·26
1933–34	1,216	99,750	82	14·76
1934–35	1,464	173,735	119	18·92
1935–36	3,540	396,960	112	11·03
1936–37	5,294	—	—	—

TABLE V.

Year.	Export of lint, lb.	Value £.
1932	148,860	8,392
1933	160,792	8,107
1934	204,519	9,346
1935	205,549	9,947
1936	395,598	28,972

The close season for 1936 was from May 1st to July 31st. In view of the severe attack of pink boll-worm in Bequia an attempt was made to compel growers to clean up their fields more efficiently. Sixteen growers who failed to comply with the Cotton Protection Ordinance were reported to the Police and were subsequently fined.

1936–37 Crop. The planting season for the 1936–37 crop extended from August 1st to the middle of October. Although the amount of rainfall during this period was normal it was very unevenly distributed, and weather conditions were on the whole very unfavourable. The germination of the seeds was good, but there was a very high mortality of the seedlings when they were a few inches high. The seed was not treated with corrosive sublimate solution before sowing, and it is believed that the death of the seedlings was largely due to a severe infection of the young leaves and stems by *Bacterium malvacearum*. The areas planted by planters and peasants are given in Table VI.

TABLE VI.

				Acres.	Acres.
3,354	Peasants	St. Vincent	...	3,027	
214	,,	Bequia	...	95	
13	,,	Battawia	...	18	
3,581					3,140
26	Large Growers	St. Vincent	...	2,048	
3	,, ,,	Grenadines	...	106	2,154
29					5,294

The manuring of cotton fields with relatively heavy dressings of nitrogenous manures is now becoming much more general. Cotton seed meal and/or sulphate of ammonia were applied by most estate owners and there is a tendency to make larger applications. One or two planters applied sulphate of ammonia at the rate of 3 cwt. per acre to a large number of their fields. The quantity of manures used by peasants is also increasing, and in cases where cotton is grown on the share system the cost of the manure is often shared between the landlord and the tenant.

The weather conditions experienced during October and November were favourable to the growth of cotton, and the appearance of the fields improved considerably. December, however, was very dry and, in consequence, the growth of the plants was checked, and there was a tendency for the fields to be forced into early maturity. It was estimated at the end of the year that the production of lint for the 1936-37 crop would be about 1,100 bales.

Two experiments were laid down by the Department in August 1936 to ascertain the effects of sulphate of ammonia, sulphate of potash and superphosphate when applied separately and in different combinations.

Marie Galante.

The exports of Marie Galante lint during 1936 amounted to 68,285 lb. valued at £1,707. The exports during 1935 were 38,604 lb. valued at only £804. The price realised in England was 7.5d. per pound c.i.f.

The acreage returns for the 1936-37 season are given in Table VII.

TABLE VII.

				Acres.	Acres.
192	Peasants	Union Island	...	475½	
44	,,	Canouan	...	85	
236	,,				560½
2	Large Growers	Grenadines			185
					745½

The acreage planted for the 1935-36 season was 721 acres.

Sugar and Syrup Industries.

Sugar Industry.

The acreage under cane during the 1935-36 season was approximately 1,900 acres of which 650 acres were grown for the production of sugar. Sugar and rum were again manufactured on only one estate, and production amounted to about 1,500 tons and about 35,000 gallons respectively. The exports were 500 tons of sugar and 5,480 gallons of rum valued at £3,961 and £731 respectively.

The acreage planted for sugar production in 1936-37 is about 650 acres.

Syrup Industry.

Prior to 1936 the manufacture of syrup of good quality in St. Vincent was largely a matter of chance. The factories used processes which had been gradually evolved by estate-owners and their employees and the chief scientific instrument in use was a Baumé spindle for determining the density of the finished product.

In May 1935, Mr. J. G. Davies, Sugar Technologist at the Imperial College of Tropical Agriculture visited St. Vincent to investigate matters concerning the equipment of the factories, the manufacturing methods and the standard of the syrup produced. In a Report submitted to Government Mr. Davies indicated what improvements were desirable and how they should be carried out, and suggested that a Specialist Officer should be appointed by Government to assist in carrying out his recommendations.

With the aid of a loan obtained from the Colonial Development Fund, a Crop Specialist (Sugar), Mr. C. C. Seale, was consequently appointed in November 1935. During the 1936 crop, Mr. Seale's main object was to introduce into each factory, according to the equipment and facilities available, a method of producing a syrup of good and uniform quality. Later, when a sufficient degree of uniformity has been reached the quality of the syrup could be further standardised by co-operative blending.

The mills in use are not up-to-date and the crushing of the canes is generally very poor. This is probably responsible for the fact that under St. Vincent conditions the quantity of lime needed to produce good clarification is very small. Liming so that the pH value of the clarified juice was 5·3—5·4 was usually found to be sufficient.

In order to control the amount of inversion taking place during the process of manufacture, planters were advised to add an inverting agent in quantities which varied according to the acidity and the time taken in evaporating the juice to syrup. For determining the acidity of the juice at the various stages pH comparators were recommended.

As the density of syrup decreases considerably with an increase in temperature the use of a Baumé hydrometer in hot syrup for determining what the density of the syrup will be when cold is unsatisfactory unless an accurate correction for temperature is made. For this reason planters were advised to purchase thermometers and to strike when the boiling point of the syrup reached a certain temperature. This was found to produce much smaller fluctuations in the final density.

In many factories, however, the benefits derived from the Crop Specialist's work and advice were limited by the unwillingness of the estate owners to incur any additional expenditure because of the unsatisfactory condition of the market. He was particularly handicapped by the difficulty of teaching the person in charge of some of the factories the way to use the scientific instruments and to modify the procedure to suit the particular circumstances. It is extremely difficult to convince a labourer, who has perhaps been making syrup for years and regards himself as a specialist, that his methods could be improved, and it is even more difficult to get him to carry out instructions in the absence of constant supervision.

In spite of these handicaps, there has been a considerable improvement in the quality of syrup manufactured on the majority of estates. On the whole the syrups are cleaner and clearer, they are of higher density, and the apparent purity is nearer to the optimum. There are still fluctuations in quality but if these were eliminated by co-operative blending, the resulting syrup would be of a fairly high standard.

At the end of 1936 efforts were made to induce growers to practise co-operative blending, but the prevailing opinion was that the condition of the syrup market at that time did not warrant the expenditure necessary to carry out a blending scheme.

The area of cane grown for syrup manufacture during the 1935-36 season was approximately 1,150 acres of which about 1,100 acres were actually reaped.

The average yield of cane obtained was very low and was estimated to be 15 tons per acre. The average yield of syrup obtained on eight different estates was 301·9 imperial gallons per acre. The production of syrup in 1935 and 1936 was slightly more than 300,000 gallons per annum.

The exports of syrup during 1936 amounted to 168,720 gallons valued at £7,900 whereas the exports during 1935 were 148,357 gallons valued at £6,182. Local consumption is estimated to be about 30,000 gallons per annum. The stocks of syrup in St. Vincent at the end of 1936 were estimated to be about 290,923 gallons. The exports of sugar and syrup and their values for the last five years are given in Table VIII.

TABLE VIII.

Year.	Sugar tons.	Value £	Syrup Gallons.	Value £	Total Value.	Exports calculated as tons sugar.
1932	200	1,900	164,040	5,994	7,894	1,080
1933	850	8,162	278,528	11,624	19,786	1,778
1934	750	5,979	269,233	11,218	17,197	1,647
1935	725	6,406	148,357	6,182	12,588	1,219
1936	500	3,961	163,720	7,900	11,861	1,046

The area of cane planted in 1936 for syrup production in 1937 was reduced to approximately 742 acres. The dry weather at the beginning of 1936 seriously retarded growth, especially of plant canes which sometimes completely dried up. The production of syrup during 1937 is estimated to be 190,000 gallons.

The Crop Specialist laid down three sugar-cane manurial experiments during 1936, one with ratoon canes which will be reaped during 1937 and the other two with plant canes to be reaped in 1938.

During the 1936 crop, Mr. Seale also obtained data with regard to the infestation of joints of cane with the cane borers, *Diatraea saccharalis* and *canella*. The figures he obtained are given later in this Report.

Coconut Industry.

The area under coconuts is estimated to be about 5,300 acres. The acreage was not increased during the year, but a large number of trees have not yet come into bearing and production is likely to expand appreciably during the next few years.

Although coconuts are reaped throughout the year, the largest pickings are obtained in St. Vincent during the dry season. In 1936 the yields obtained were fairly normal during the first six months, but there was a marked decline in the last six months probably owing to the effects of the abnormal dry weather when the nuts were developing.

The recovery in the prices of copra which began in December 1934, when the London c.i.f. price was £10. 0. 0 per ton, continued. The price remained at about £15. 10. 0 per ton from January 1936 to October 1936 after which it increased rapidly to £22. 15. 0 at the end of December. The price offered for whole nuts did not increase in proportion to the prices offered for copra and consequently, after existing contracts for nuts had expired, there was a tendency to produce more copra.

The quantities and values of coconuts and copra exported during the last five years are given in Table IX. In spite of a reduction in the quantities of nuts and copra exported compared with 1935, the value of the exports is a record for the industry. In the last column the exports are combined by assuming that 4,500 nuts are equivalent to one ton of copra.

TABLE IX.

Year.	Coconuts.		Copra.		Total Value £.	Total exports calculated as Tons copra.
	Number.	Value £.	Tons.	Value £.		
1932	72,130	281	994	11,426	11,707	1,010
1933	17,713	38	960	8,978	9,016	964
1934	979,988	2,538	900	6,551	9,089	1,118
1935	3,391,582	10,215	375	3,418	13,633	1,129
1936	2,795,190	8,969	352	4,831	13,800	973

All the copra exported was shipped to Barbados or Trinidad. Of the nuts exported 49% were shipped to the United States of America and 48% to Canada.

Cassava Industry.

The exports of cassava starch during 1936 as shown in Table II amounted to 531,944 lb. valued at £2,395. Owing to unremunerative prices, however, very little cassava starch was manufactured during 1936 and the exports chiefly consisted of starch held in stock from previous years. To dispose of stocks planters had to sell at prices as low as 2 cents per pound. Such low prices and the revival of the cotton industry have resulted in a still greater reduction in the acreage planted during 1936.

Banana Industry.

The acreage under bananas increased from 550 acres in January to about 1,000 acres at the end of December. The severe dry season during the first four months of 1936 affected the banana industry very seriously. The drought exaggerated the effects of planting in unsuitable areas, and many fields have since been abandoned or the plants have been removed and utilised as planting material in more suitable areas. The growth of the trees was considerably retarded, and for many months after the drought had terminated the size and quality of the fruit produced was extremely low. Many planters adopted the practice of allowing plants which had been planted for fruit production to grow several suckers which they later removed to provide planting material for other fields. The removal of the suckers often damaged the root system of the parent plants, thereby making them more liable to be blown over or suffer from lack of moisture during high winds. This caused a reduction in the quality of the fruit produced. There is no doubt that plants should be grown either to produce fruit or to produce planting material but not for both at the same time.

During the greater part of 1936 the main object of some planters appears to have been to increase their acreages. Towards the end of the year, however, they began to pay much more attention to the cultivation and pruning of their fields and to the handling and transport of the fruit and in consequence there was a decided improvement in the appearance of the fruit delivered to the Association.

All fruit for shipment is delivered by the growers to a building erected in 1936 by the Banana Association on the bay front. The fruit is usually transported from the plantations in lorries or buses, but from some districts on the Leeward Coast it is conveyed in boats or lighters. On the delivery of the fruit to the Depôt the fruit is accepted or rejected, graded, and that which is accepted is packed into lighters and stowed on board the steamers. This work is carried out by or under the supervision of the Instructor for the Banana Industry, aided by two Field Assistants.

The exports of bananas during 1936 according to the Customs' returns amounted to 35,598 stems valued at £2,663. The quantity of fruit sold by the Association, however, amounted to 35,550 stems, equivalent to 22,661 count bunches, for which the Association actually received £2,737. During the last

six months of the year, with the exception of two shipments, no six hand bunches were accepted by the Canadian Banana Company. The following table gives details of fruit delivered to the Association since July 31st 1935 :—

TABLE X.

		1935.	1936.
9 Hands	...	1,285	6,192
8 „	...	1,648	10,180
7 „	...	2,438	16,138
6 „	...	399	3,040
Total stems	...	5,770	35,550
Count bunches	...	3,840	22,661
Percentage counts	...	66·5	63·7
Value	...	£ 464	£2,737
Rejects	...	360	2,985

The total exports and export values for the last three years are given in Table I.

The incidence of Panama disease on the leeward side of the island is still extremely low and less than forty stools were destroyed during the year. On the windward side several hundred stools were destroyed by the Department. The method of destroying trees with B.D.K. oil was demonstrated to growers and stocks of oil are available in all districts for free distribution to all persons who undertake the destruction of plants on their own land.

Cocoa Industry.

The low yields obtained from cocoa fields, unremunerative prices, and the need for land for the expansion of the banana industry were again responsible for a reduction in the acreage under cocoa during 1936. The acreage at the end of the year is estimated to be about 400 acres.

The exports of cocoa during the last three years are given in Table I. During 1936 they amounted to only 27,782 lb. valued £235, or less than one-third of the quantity shipped during any other recent year.

Minor Industries.

Maize.

Maize is grown on a very small scale, chiefly as a catch crop interplanted amongst cotton. Most of the grain is consumed locally and during 1936 only 5,368 lb. valued at £22 were exported.

Groundnuts.

The acreage under groundnuts is now little more than sufficient to meet demands for local consumption. In 1936 only 575 lb. valued at £2 were exported.

Sweet Potatoes.

The acreage under sweet potatoes is diminishing owing to the low prices obtained in Trinidad and also to the revival of the cotton industry.

The exports during 1936 amounted to 3,411 bags valued at £1,096, whereas in 1935, 9,150 bags valued at £2,294 were exported. The prices obtained by growers in the local market varied from four to six shillings per bag of 120 lb.

Soya Beans.

During the year samples of the following ten varieties of soya beans were introduced into St. Vincent from the United States Department of Agriculture in Washington, which was kind enough to supply the seed free of charge :

Biloxi	Monetto	Haberlandt
White Biloxi	Dunfield	Palmetto
Tokyo	Harbinsoy	Illini
	Otootan	

also samples of two unknown varieties from Australia were presented to the Department by Mr. Moller.

These twelve varieties will be tested under St. Vincent conditions and if satisfactory yields are obtained they may prove to be a valuable addition to the existing food crops. Experience in other parts of the world has shown that soya beans are liable to produce disappointing results on first being introduced, and that variety trials may have to be continued for some years until the varieties have adapted themselves to local conditions.

Pests and Diseases.

Cotton Pests.

By means of grants obtained from the Colonial Development Fund and the West Indian Sea Island Cotton Association, Incorporated, an Entomologist was appointed on August 22nd, 1936, to investigate the life history of the pests of Sea Island cotton in the Windward and Leeward Islands, with the object of discovering means by which the pests might be controlled. The officer appointed, Mr. F. A. Squire, arrived in St. Vincent on October 28th, and will be stationed in the island for about six months.

Information with regard to the chief cotton pests in St. Vincent during 1936 is given under the heading "Cotton Industry." A few slight attacks of the cotton leaf worm were recorded in October and November, but the amount of damage caused was negligible.

Arrowroot Leaf Roller. (*Calpodes ethlius*).

This pest was particularly serious during 1936, but by the end of the third brood, parasites were definitely effecting some control. The chief parasites concerned were three small wasps which attack the caterpillar in its early stages, and several species of flies, chiefly Tachinids, which attack the caterpillar in its later stages, and may also parasitise the pupae. In addition predators, for example black birds, jack spaniards, and a large active Carabid beetle, destroyed a large number of caterpillars and pupae. The incidence of the egg parasite *Trichogramma* was extremely low until very late in the season. Specimens of the parasites were collected and sent away for accurate identification.

Banana Borer (*Cosmopolites sordidus*).

This insect is still rare in St. Vincent.

Sugar Cane Moth Borers (*Diatraea saccharalis* and *D. canella*).

The amount of damage caused by cane borers on various estates was estimated by the Crop Specialist (Sugar) who selected canes at random and counted the number of joints which had been bored. The percentage of joint infestations was determined from counts made on 4,900 canes or 67,803 joints. The average joint infestation on eight estates was 11·01%. On three leeward estates it was 13·15% and on five windward estates 9·56%. The actual figures are recorded in Table XI. The amount of joint infestation, stalk infestation and dead hearts occurring in fifty stools of each of the varieties P.O.J. 2878 (3rd ratoons) and Ba 11569 (plant canes) is recorded in Table XII.

TABLE XI.

Estate.	Joints.	Bored.	% Joint infestation.
"Peters Hope" ...	9,467	1,203	12·71
"Cane Grove" ...	11,516	1,477	12·83
"Rutland Vale" ...	6,363	916	14·40
"Mount Bentinck" ...	12,962	650	5·01
"Spring" ...	9,351	714	7·64
"Argyle" ...	7,363	1,419	19·27
"Cane Hall" ...	5,344	570	10·67
"Fair Hall" ...	5,437	514	9·45
Total ...	67,803	7,463	11·01

TABLE XII.

	POJ 2878 (3rd ratoons).	Ba 11569 (plants).
% Joint infestation ...	13·34	18·59
% Stalk „ ...	71·38	87·67
% Dead Hearts ...	11·29	16·72

Sweet Potato Scarabee Beetle. (*Cryptorhynchus batatae*).

The larvae of this beetle were observed in sweet potatoes which had been left in the ground rather too long during the dry season.

SECTION II.

Botanic Gardens.

A number of ornamental shrubs and trees were planted in the Botanic Gardens during the year, namely, species of Bougainvillaea, Lagerstroemia, Jacaranda, Ixora Poinciana, Poinsettia, Oleander, Cassia, Rondeletia, Beaumontia Tecoma, Brownea, Spathodea, Bignonia and Congea.

The lower part of the old cocoa field was lined, re-drained and planted with citrus trees of the following varieties :— Valencia, Washington Navel and Jaffa oranges and Marsh Seedless, Foster and Duncan grapefruit. The budwood used was grown from material obtained from Trinidad through the Commissioner of Agriculture in 1935 and was inserted into sour orange stocks.

A portion of the upper part of the field has been planted with two species of Derris (*D. elliptica* and *D. malaccensis*) to ascertain whether they are likely to thrive under St. Vincent conditions. The amount of growth produced during 1936 was not very satisfactory.

Importations.

The following seeds and propagating materials were imported by the Department during the year :—

(*a*) Through the Commissioner of Agriculture—
- (1) onion seeds from Teneriffe.
- (2) Early Patna cauliflower seed from India.
- (3) cuttings of Guatemala grass from the Plant Quarantine Station, Trinidad.
- (4) Seeds of ten varieties of groundnuts from India.

(*b*) From the United States Department of Agriculture—
- (1) seeds of ten varieties of soya beans.

(*c*) From the Agricultural Department, Dominica—
- (1) cuttings of *Ixora lutea*.
- (2) seeds of *Tephrosia candida* and *Crotalaria spp.*

At the request of a local planter a culture of *Rhizobium Japonicum* an organism inhabiting the root nodules of soya beans was imported. The organism was introduced into a field in which soya beans were growing, and the root systems of the beans were successfully inoculated.

The following plant material imported by private individuals was examined under the provisions of the Plant Protection Ordinance, 1935 :—

Vegetable and other seeds	124 parcels
Ornamental and other plants	63 „

The contents or part of the contents of four parcels of plant material were destroyed because they were in an unhealthy condition or because the parcels contained soil. A shipment of seven plants which were growing in soil were prohibited from landing.

Nurseries and Plant Distribution.

The plants and propagating material distributed by the Department during the last three years are given in Table XIII.

TABLE XIII.

	1934.	1935.	1936.
Plants.			
Tomato	29,800	12,500	—
Onion	2,800	400	—
Cabbage	2,400	1,450	—
Lime budded	4	6	13
Mango	195	107	528
Grapefruit budded	99	98	129
Orange „	5	104	126
Avocado pears	1	—	—
Coconut	2	21	41
Pawpaw	150	—	—
Pineapple	22	48	—
Decorative (misc.)	139	478	93
Economic „	—	13	4
Cuttings.			
Sugar-cane	12,300	8,900	28,432
Sweet potato	—	—	218
Yam	—	—	459
Rhizomes.			
Arrowroot	5,250 lb.	9,867 lb.	2,000 lb.
Seeds.			
Groundnut	22 „	8 „	35 „
Cover crops	320 „	20 „	1,351 „

Citrus.

The budded citrus plants distributed during 1936 were of high quality, and under suitable conditions should produce excellent trees. The varieties available were Marsh seedless, Foster and Duncan grapefruit and Valencia, Washington Navel and Jaffa oranges. Purchasers were advised on the correct method of planting, that is, on mounds, not too deeply and in sheltered situations and in some instances trees were planted under the supervision of an officer of the Department.

Mangoes.

The demand for grafted Julie, Peach and Ceylon mango trees increased considerably during 1936, and was often greater than the supply.

Sugar-cane.

Cuttings of the variety B 2935 have now been distributed to nearly all the cane growing estates. This variety has produced excellent yields in the drier cane growing areas in Barbados and it is hoped that it will give similar results in some of the drier districts in St. Vincent.

Cover Crops.

There was a considerable demand for seeds of Sword beans and Bengal beans during 1936, but as these crops are generally ploughed in as green dressings before the plants are mature, the supply of seed available is usually limited and the price of seed is high. Provided the weather is suitable for quick germination both Bengal beans and Sword beans are very useful for growing as catch crops between two crops of cotton. Their use as green manure crops and as cover crops is increasing.

Breadfruit.

Several dozen breadfruit slips were grown in the nursery during the wet season, and later transplanted into tins. In 1937 it is proposed to transport the plants to Union Island where efforts will be made to get them established. At present there are no breadfruit trees in the island.

The Giant Toad.

The introduction of the Giant Toad (*Bufo marinus*) during 1935 has proved to be successful and toads are now fairly commonly found two or three miles from the centres where they were liberated.

Board of Agriculture and Forestry.

Arising from a suggestion by the Commissioner of Agriculture legislation was enacted in July 1935 providing for the formation of a Board of Agriculture and Forestry consisting of His Honour the Administrator as Chairman, the Superintendent of Agriculture and not less than five persons interested in the agricultural industries of the Colony. The purpose of the Board was to enable closer cooperation between the planting community and Government to be maintained, with particular reference to the work of the Agricultural Department.

The inaugural meeting of the Board was held on December 30th, 1935, and the Agricultural Assistant was appointed Secretary.

During the year 1936 three ordinary, and one special, meetings were held. At the special meeting on January 13th, Mr. Wimbush, Chief Conservator of Forests, Madras, who had inspected the forests of St. Vincent gave an informal talk on the results of his survey and outlined tentatively his suggestions for the conservation of the forests.

At the ordinary meetings of the Board much information on the various crops and the activities of the Department were presented by the Superintendent of Agriculture and there were many useful discussions on the work of the Department and matters of general agricultural interest. Minutes of all meetings were fully recorded and relevant extracts of general interest published in the local newspapers.

Agricultural Education.

The Agricultural Superintendent examined the Pupil Teachers in Agriculture in September. Fourteen First Year, eleven Second Year and five Third Year pupils sat the examinations, and eight, nine and three respectively passed.

During the last two or three years the experiments conducted on the arrowroot and cotton crops have enabled the Department to give much more valuable advice with regard to the manuring of these crops than was previously possible. As a result the use of manures by both planters and peasants is rapidly increasing.

The Field Assistant continued to visit peasants in the various districts for the purpose of discussing their problems and giving advice with regard to the cultivation of their crops. Advice was also given by other officers of the Department from time to time, but there are no general Agricultural Instructors attached to the Department entirely devoted to instructional work. Information

as to the method of planting, cultivation, reaping and handling of bananas was given by the Instructor for the Banana Industry and two Field Assistants. The acreage planted by peasants at the end of the year was more than 100 acres.

Official Visitors 1936.

The following gentlemen visited the Agricultural Department during the year :—

Mr. G. A. Jones, Commissioner of Agriculture, from December 25th 1935 to January 14th 1936 to preside at the meeting of the West Indian Sea Island Cotton Association and to give advice on various agricultural matters.

Sir Geoffrey Evans, Principal of the Imperial College of Tropical Agriculture, and Professor Cheesman, to inspect the work of the Cotton Research Station, from January 8th to 14th.

Mr. Wimbush, Chief Conservator of Forests, Madras, to investigate forestry problems, from January 8th to 14th.

Mr. C. C. Skeete, Assistant Commissioner of Agriculture, to discuss and give advice on general agricultural matters, including land settlement problems, from December 31st 1935 to January 14th 1936, from March 18th to April 2nd and from December 1st to 15th.

Mr. Hampson of the West India Committee, from January 22nd to 28th.

Mr. Schouten, Agricultural Assistant, Montserrat, to gain information with regard to the cotton industry and breeding work in St. Vincent, from January 14th to February 5th.

Mr. C. T. Watts, Imperial College of Tropical Agriculture, to inspect the machinery at the Government Cotton Ginnery, from February 5th to 11th.

Mr. Killby, Secretary, Empire Cotton Growing Corporation, to see the work of the Cotton Research Station, from March 4th to 10th.

Other visitors included Messrs. Hammond and Stokes, Education Commissioners, Dr. Skovsted of the Cotton Research Station, Trinidad, Mr. Coppin, Agricultural Department, Barbados, Mr. Fennah, Entomologist, Dr. Adamson, Entomologist, and various students of the Imperial College of Tropical Agriculture.

SECTION III.

Financial Statement.

The sum of £3,009 was voted for the maintenance of the Agricultural Department during the year, whereas the amount voted for 1935 was £2,428. The former figure does not include the sum of £438 voted from the Colonial Development Fund for Syrup Investigations.

The actual expenditure for the year was as follows :—

	£	s	d
Salary, travelling allowance, Agricultural Superintendent ...	596	8	11
Salary, travelling and house allowance, Agricultural Assistant ...	248	5	3
Salaries and travelling allowances, Instructor and Field Assistants for the Banana Industry.	284	3	9
Travelling allowance, Cotton Research Officer, salaries Laboratory and Clerical Assistants to Cotton Research Officer ...	149	14	0
Salaries, Foreman, Botanic and Experiment Stations, Field Assistant, Clerical Assistants, Cadets, and travelling allowances of Field Assistant and Cadets, and special travelling expenses	416	18	5
Carried forward ...	1,695	10	4

	£.	s.	d.
Brought forward ...	1,695	10	4
Upkeep Botanic, Experiment and Cotton Stations, Government House Grounds, (Labour, manures, insecticides, tools, seeds, &c.)	659	6	3
Special Cotton Investigations.	34	0	10
Destruction of food plants of the Cotton Stainer and diseased Banana plants	24	9	5
Contribution to various Scientific Institutions	394	12	6
From Colonial Development Fund, Salary, travelling and house allowance Crop Specialist (Sugar)	393	4	11
Miscellaneous expenditure for Syrup Investigations ...	22	13	2
Total ...	£3,223	17	5

The receipts for the sale of plants and produce at the Experiment and Botanic Stations amounted to £57. 17. 9½.

SECTION IV.

Summary of Agricultural Legislation 1936.

Ordinances.

No. 5 of 1936. To amend the Importation of Animals (Diseases Prevention) Ordinance 1933, so that it no longer refers to poultry (fowls, ducks, geese, turkeys, and guinea fowls).

No. 9 of 1936. To amend the Cotton Export Levy Ordinance 1934.

No. 13 of 1936, *No. 24 of 1936*, and *No. 25 of 1936.* To amend the Land and House Tax Ordinance Cap. 194.

No. 26 of 1936. To amend the Cotton Seed Control Ordinance 1935.

No. 27 of 1936. To amend the Board of Agriculture Ordinance 1935.

No. 31 of 1936. To amend the Labour (Minimum Wage) Ordinance 1934.

Orders in Council.

17th March. Under the Cotton Export Levy Ordinance 1934, reducing the cess imposed on cotton exports from ¾ cent to ½ cent per lb.

24th April and *16th July.* Under the Cotton Protection Ordinance Cap. 37 declaring the Close Season for cotton and ochroes in St. Vincent and the St. Vincent Grenadines to be from 1st May to July 31st.

16th June. Under the Customs Ordinance, prohibiting the export of cotton seed except under a licence from the Agricultural Superintendent and repealing Order in Council of 29th August 1921.

12th November. Under the Export Duties Ordinance 1933, removing the duties on corn, peas, peanuts and animals.

APPENDIX I.

Meteorological Observations.

The rainfall recorded at various centres in St. Vincent during the year 1936 and the average rainfall recorded at the Botanic Gardens for the last 43 years are given in Table XIV.

TABLE XIV.

Stations.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Chateaubelair ...	2·25	1·50	—	3·43	9·13	14·68	14·78	9·41	17·51	9·46	4·15	4·46	90·76
Botanic Gardens ...	2·07	1·79	·39	2·19	9·11	10·87	14·33	8·96	10·41	13·31	11·11	4·20	88·74
Experiment Station ...	2·15	2·06	·47	2·56	8·24	11·54	14·77	8·77	9·93	12·45	9·68	3·56	86·18
Sans Souci ...	2·03	1·42	·66	2·81	11·34	13·14	10·68	7·30	11·05	9·75	10·13	3·71	84·02
Glen ...	2·23	2·16	·49	2·06	6·94	12·08	13·16	9·45	7·15	12·49	7·83	3·46	79·50
Barrouallie ...	1·72	·97	·15	1·95	6·48	14·02	13·42	10·33	10·80	6·20	6·47	1·95	74·46
Bequia ...	4·46	1·09	·37	1·38	5·06	7·85	15·36	7·13	5·91	7·75	11·39	2·41	70·16
Brighton ...	1·01	1·01	·41	1·37	5·56	9·61	12·50	6·92	7·10	9·08	6·00	2·27	62·84
Union Island ...	1·25	·52	—	3·30	2·46	8·25	6·90	4·75	7·60	4·23	4·30	2·20	45·76
Canouan ...	·63	·52	—	2·83	1·47	7·26	11·41	4·01	5·38	5·31	4·64	1·53	44·99
Mayreau ...	·57	·28	—	2·17	2·55	4·95	7·05	4·08	6·81	2·89	5·10	1·04	37·49
Botanic Gardens, average rainfall, 43 years	6·27	4·15	3·94	3·96	6·76	10·89	11·82	11·71	11·14	12·00	11·48	7·84	101·96

Rain was recorded on 258 days at the Botanic Station during the year and on 242 days at the Experiment Station.

Table XV gives the mean temperature, degree of humidity and barometric pressure at the Experiment Station for each month of the year. Observations were made twice per day at 9 a.m. and at 3 p.m.

TABLE XV.

Months.	Mean temperature F°.	Average Degree of humidity Saturation 100.	Mean Barometric pressure in inches.
January ...	80·3	66·2	29·956
February ...	79·9	66·0	29·964
March ...	81·7	69·1	29·938
April ...	82·5	69·4	29·961
May ...	82·7	72·7	29·919
June ...	82·7	74·1	29·937
July ...	82·5	74·5	29·955
August ...	84·1	73·0	29·916
September ...	83·4	74·4	29·903
October ...	83·1	72·3	29·891
November ...	82·7	73·7	29·912
December ...	81·3	70·9	29·917

The readings of the barometer, corrected for instrumental error, elevation, temperature and latitude ranged from 30·042 inches on 8th February to 29·762 inches on 6th November.

APPENDIX II.

Three Rivers Land Settlement.

Of the 132 allotments comprising 631 acres which were originally available for distribution, only two allotments comprising 19 acres remained to be sold at the end of 1936. Five allotments were sold during the year. The amount collected during 1936 for instalments and interest was £966 15. 6 but many of the allottees are in arrears with their payments.

The crops grown on the settlement are chiefly arrowroot, and provisions, with small areas of sugar-cane, bananas and coconuts. The allottees have continued to live in the neighbouring villages of Park Hill, South Rivers, and Colonarie and as there is a tendency to keep their stock near their houses, the quantity of manure applied to their lands is somewhat limited. The need for applying greater quantities of manures has been pointed out to them and the Department is making arrangements to demonstrate the advantages in 1937. Most of the allottees, however, realise the value of manuring but they seem to be unable to afford the expenses involved in making greater applications, owing to the fact that they are already financially encumbered.

Most of the arrowroot and cane grown was manufactured into starch and syrup at the factories leased to the Three Rivers Agricultural Credit Society by Government. The products, however, were of a fairly low grade.

APPENDIX III.

Agricultural Credit Societies.

Clare Valley—Questelles. This Society which is composed of 45 members has shown a little greater activity during the last two years since it has been able to obtain loans from a private source. At the end of 1936 the Society had £74 of its own funds, all of which was distributed in the form of loans. In some cases the borrowers have been in possession of the loans for a number of years, and although the Secretary has had great difficulty in collecting them, they are all believed to be recoverable. The loan of £62. 10. 0 borrowed from a private source and lent out to members during 1935 was collected and repaid by August 1936, and in September 1936 another loan of £72. 18. 4 was obtained and distributed. No new loan is made to any member already indebted to the Society.

Georgetown. This Society has made no progress for a number of years as it has been unable to raise a loan. Of the £27 belonging to the Society, approximately £21 lent out to members during 1935 was collected in December 1936 and the same sum was again advanced.

Three Rivers. All the 48 members of the Society are allottees of the Three Rivers Land Settlement. The Society leases the Arrowroot and Syrup Works on the estate from Government at a peppercorn rental of one shilling per annum. Members who have their produce manufactured at the works pay all labour costs in addition to fees charged by the Society of 2/- per barrel of starch and one penny per gallon of syrup manufactured. Non-members are charged 2/6 per barrel and 1½ pence per gallon in addition to labour costs. The fees collected during the 1936 crop amounted to approximately £60. Most of this money was spent in repairing and improving the buildings and equipment.

Owing to the type of equipment in use and the difficulty of effecting the rapid drying of starch, the quality of starch manufactured was fairly low. It would be impossible to remedy some of the defects, however, without the additional expense of enlarging some of the buildings.

In November 1936 the Society obtained a loan of £130 from Government at 4% interest and is making advances to members at 6% interest.

APPENDIX IV.

REPORT ON THE WORKING OF THE GOVERNMENT COTTON GINNERY FOR THE PERIOD 1ST JANUARY TO 31ST DECEMBER, 1936.

Ginning and Baling.

The total quantity of Sea Island Cotton ginned was 845,907 lb. which consisted of 765,903 lb. white and 80,004 lb. stained giving a total of 219,295 lb. of lint.

The amount of seed-cotton ginned during the previous (1934-35) season was 324,155 lb.—(295,613 lb. white and 28,542 lb. stained). For that crop the lint obtained was 74,439 lb. of white and 6,837 lb. of stained making a total of 81,276 lb.

Oil Expressing and Refining.

Oil was expressed from 929,665 lb. of cotton seed which included 303,389 lb. from the Kingstown Cotton Factory, 97,654 lb. from the Agricultural Credit and Loan Bank, Ltd., and 217,515 lb. of Marie Galante seed purchased from growers in the St. Vincent Southern Grenadines.

The quantity of refined oil obtained during the 1935-36 crop was 13,354 gallons and 2,802 bars of soap were manufactured.

Purchase of Cotton on the Co-operative System.

A total of 420,487 lb. of Sea Island seed-cotton (381,388 lb. white and 39,099 lb. stained) was purchased from small growers during the season. An advance of 6 cents per lb. was made on white and 1½ cents on stained seed-cotton.

The lint obtained was 105,257 lb. which consisted of 95,474 lb. white and 9,783 lb. stained.

The sum of £4,954 was advanced for the purchase of cotton and a bonus of £1,827 was distributed. Altogether, the amount paid to each peasant per lb. of seed-cotton was 8·2 cents plus ½lb. of cotton seed meal.

Other Operations.

9,093 lb. of cob corn were shelled and 8,834 lb. corn were ground into meal.

Grain fumigated and stored in moth-proof rooms totalled 16,593 lb. as compared with 19,268 lb. in the previous crop-year.

37,947 lb. of cotton seed were selected and disinfected for planting.

114,885 lb. of stained cotton seed were disintegrated for use as manure.

Summary of Operations.

		Crop 1934-35.	Crop 1935-36.
Seed-cotton received and ginned	lb. ...	324,155	845,907
Cotton seed expressed	,, ...	514,890	929,665
Cotton seed disintegrated	,, ...	43,014	114,885
Seed-cotton purchased	,, ...	193,391	420,487
Corn shelled	,, ...	23,508	9,093
Corn ground into meal or stock-feed	,, ...	5,501	8,834
Cotton seed selected and disinfected for planting	,, ...	26,147	37,949
Grain fumigated and stored	,, ...	19,268	16,593
Cotton seed oil refined	gallons ...	3,073	13,354
Soap manufactured	bars ...	1,777	2,802
Cotton seed meal ground	tons ...	176	313